PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PU030202	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/US2004/021746	International filing date *(day/month/year)* 08.07.2004	Priority date *(day/month/year)* 14.07.2003
International Patent Classification (IPC) or national classification and IPC H04N5/52		
Applicant THOMSON LICENSING S.A. et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 3 sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
04.01.2005	07.09.2005
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Brandenburg, J Telephone No. +49 89 2399-8027

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US2004/021746

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-10	as originally filed
Claims, Numbers	
1-16	received on 07.01.2005 with letter of 04.01.2005
Drawings, Sheets	
1/2, 2/2	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-16
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-16
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1 The following documents are referred to in this communication:

D1 : US 6 353 463 B1 (SEO YOUNG-JOO) 5 March 2002 (2002-03-05)
D2 : EP 0 944 255 A (ALPS ELECTRIC CO LTD) 22 September 1999 (1999-09-22)
D3: EP-A-1 383 318 (ALPS ELECTRIC CO LTD) 21 January 2004 (2004-01-21)
D4: US-A-6 061 096 (LIMBERG ALLEN LEROY) 9 May 2000 (2000-05-09)

2 INDEPENDENT CLAIMS 1, 7, 12

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 7, 11 does not involve an inventive step in the sense of Article 33(3)PCT.

2.1.1 Document D1, which can be considered to represent the most relevant state of the art to the subject matter of claim 1, discloses (the references in parenthesis applying to this document):

a signal processing apparatus (see fig. 2) comprising
a) tuning means (20) for generating first and second IF signals (analog/digital IF),
b) first AGC means (14A) for generating a first AGC signal (AGC_d) responsive to said first IF signal;
c) second AGC means (14B) for generating a second AGC signal (AGC_a) responsive to said second IF signal,
d) switching means (27) for selectively providing one of said first, second [...] AGC signals to said tuning means responsive to a predetermined condition.

2.1.2 The subject-matter of independent claim 1 differs from the disclosure of D1 in:
e) third AGC means for generating a third wide band AGC signal responsive to at least one of said first and second IF signals, and

in feature d) inserting in the portion with square brackets: [or third]

2.1.3 The problem to be solved by the present invention may therefore be regarded as
increasing the number of signals to be treated by the apparatus.

2.1.4 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
In order to treat further signals of different kind it was obvious to the skilled-person to add a further AGC means and a further AGC signal especially as the results so achieved could be readily anticipated in advance.
Only increasing the number of branches in a circuit cannot be considered as an inventive matter.
Furthermore, the use of wide-band signals is also common in the field of IF and AGC circuits, see e.g. D3, abstract (D3 is only applicable as intermediate document if the priority of the application is not valid).
Otherwise, the term "wide-band" is a relative definition without providing a technical effect peculiar to this form of signal. It is also not excluded that the first and second AGC signals are also wide-band signals. Thus, the formulation "wide-band" does not provide for a sufficient technical limitation over the cited prior art.

2.1.5 Therefore the features disclosed in D1 would be normally applied by the skilled person, without exercise of any inventive skills in order to solve the problem posed. The proposed solution in independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

The same likewise applies to the subject-matter of claims 7 and 12 since they provide a similar scope in the corresponding method formulation or with a slight modification of the wording, respectively.

3 DEPENDENT CLAIMS 2-6, 8-11, 13-16
Dependent claims 2-6, 8-11, 13-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(2) and (3) PCT).

There features are almost completely anticipated by D1, since it also shows analog and digital IF signals etc.
Furthermore, as set out above, the use of wide-band signals is also common in the field of IF and AGC circuits, see e.g. D3, and the term "wide-band" is only a relative definition without providing a technical effect peculiar to this form of signal.

4 For the assessment of the present claims 1-16 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims.
However, since the present claims relate to the technical field of signal processing devices no reason is apparent that the claimed subject-matter should not be industrially applicable.

PU030202

CLAIMS

1. Signal processing apparatus (100), comprising:

tuning means (10, 15, 20, 25, 30) for generating first and second IF signals;

first AGC means (40) for generating a first AGC signal responsive to said first IF signal;

second AGC means (50) for generating a second AGC signal responsive to said second IF signal;

third AGC means (60) for generating a wide band third AGC signal responsive to at least one of said first and second IF signals; and

switching means (70) for selectively providing one of said first, second and third AGC signals to said tuning means (10, 15, 20, 25, 30) responsive to a predetermined condition.

2. The signal processing apparatus (100) of claim 1, wherein:

said first IF signal represents an analog channel; and said first AGC means (40) comprises an analog demodulator.

3. The signal processing apparatus (100) of claim 1, wherein: said second IF signal represents a digital channel; and said second AGC means (50) comprises a digital demodulator.

4. The signal processing apparatus (100) of claim 1, wherein said third AGC means (60) comprises a wide band AGC detector.

5. The signal processing apparatus (100) of claim 1, further comprising processing means (90) for outputting a control signal that causes said switching means (70) to provide one of said first, second and third AGC signals.

6. The signal processing apparatus (100) of claim 1, wherein: said first and second AGC signals are narrow band signals.

7. A method (200) for providing an AGC function, comprising:

using a tuner to generate one of first and second IF signals (210);

generating a first AGC signal responsive to said first IF signal (230); generating a second AGC signal responsive to said second IF signal (270);

generating a wide band third AGC signal responsive to at least one of said first and second IF signals (280); and

using a switch to selectively provide one of said first, second and third AGC signals to said tuner responsive to a predetermined condition.

8. The method (200) of claim 7, wherein said first IF signal represents an analog channel.

9. The method (200) of claim 7, wherein said second IF signal represents a digital channel.

10. The method (200) of claim 7, further comprised of generating a control signal that causes said switch to provide one of said first, second and third AGC signals.

11. The method (200) of claim 7, wherein:

said first and second AGC signals are narrow band signals; and said third AGC signal is a wide band signal.

12. A television signal receiver (100), comprising:

a tuner (10, 15, 20, 25, 30) operative to generate first and second IF signals;

a first demodulator (40) operative to generate a first AGC signal responsive to

said first IF signal;

a second demodulator (50) operative to generate a second AGC signal responsive to said second IF signal;

a wide band AGC detector (60) operative to generate a third AGC signal responsive to at least one of said first and second IF signals; and

a switch (70) operative to selectively provide one of said first, second and third AGC signals to said tuner (10, 15, 20, 25, 30) responsive to a predetermined condition.

13. The television signal receiver (100) of claim 12, wherein: said first IF signal represents an analog channel; and said first demodulator (40) comprises an analog demodulator.

14. The television signal receiver (100) of claim 12, wherein: said second IF signal represents a digital channel; and said second demodulator (50) comprises a digital demodulator.

15. The television signal receiver (100) of claim 12, further comprising a processor (90) operative to output a control signal that causes said switch (70) to provide one of said first, second and third AGC signals.

16. The television signal receiver (100) of claim 12, wherein:

said first and second AGC signals are narrow band signals; and said third AGC signal is a wide band signal.